(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 1 September 2005 (01.09.2005)

PCT

(10) International Publication Number WO 2005/080936 A1

(51) International Patent Classification7:

G01M 11/00

(21) International Application Number:

PCT/EP2004/050173

(22) International Filing Date: 20 February 2004 (20.02.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (for all designated States except US): PIRELLI & C. S.P.A. [IT/IT]; Via Gaetano Negri, 10, I-20123 Milano (IT).

(72) Inventor; and

(75) Inventor/Applicant (for US only): PALMIERI, Luca [IT/IT]; Via Sacharov, 4, I-35136 Padova (PD) (IT).

(74) Agents: MACCALLI, Marco et al.; c/o Maccalli & Pezzoli S.r.l., Via Settembrini, 40, I-20124 Milano (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SI., SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated. for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

of inventorship (Rule 4.17(iv)) for US only

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD FOR DETERMINING SPIN CHARACTERISTIC PARAMETERS IN SPUN OPTICAL FIBERS



(57) Abstract: A method (600) of determining characteristic spin parameters (T,Ti) of a spun optical fiber (105), comprising: performing (610,615) optical time-domain reflectometry measurements on the fiber, so as to obtain a State Of Polarization (SOP) spatial function from a backscattered electromagnetic field, the SOP spatial function being defined by a plurality of components; and processing the SOP spatial function (625-650). The processing comprises: calculating a further spatial function related to the spatial first derivative of at least one of said components of the

SOP spatial function; identifying a spatial periodicity of said further spatial function; and determining said characteristic spin parameters as a function of said spatial periodicity (630-650).